

DOCUMENT RESUME

ED 178 201

PS 010 987

AUTHOR Miller, Catherine M., Ed.; Chief, Elizabeth H., Ed.

TITLE Mother-Infant Studies: Subject Refusals and Sampling Bias.

SPONS AGENCY Grant Foundation, New York, N.Y.; National Inst. of Child Health and Human Development (NIH), Bethesda, Md.; National Inst. of Mental Health (DHEW), Rockville, Md.

PUB DATE [78]

GRANT NICHD-HD-08195-01A2; NIMH-5268-81-13645

NOTE 14p.

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS *Bias; Middle Class Mothers; *Mother Attitudes; *Mothers; *Parent Child Relationship; *Pregnancy; *Research Problems

IDENTIFIERS *Pregnancy Research Inventory

ABSTRACT

Do sampling biases introduced in studies requiring a large amount of time make those samples less representative than the samples in studies requiring less subject involvement? This question was explored in the context of mother-infant interaction studies by comparing maternal attitudes of two groups of primiparous mothers: 20 mothers who participated with their infants in 36 hours of observation and testing, and 17 mothers who refused to participate in that study but did spend 30 minutes completing a questionnaire. All subjects were white women between the ages of 17 and 29 from middle and lower middle class families. All subjects completed the Pregnancy Research Inventory (PRI), a measure of maternal attitudes, at the end of the eighth month of pregnancy. There were no significant differences between the two groups on any PRI scale. (Author/MP)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED178201

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

SCOPE OF INTEREST NOTICE

The ERIC Facility has assigned this document for processing to:

PS

TM

In our judgement, this document is also of interest to the clearinghouses noted to the right. Indexing should reflect their special points of view.

Mother-Infant Studies:
Subject Refusals and Sampling Bias

Margaret P. Freese¹

Department of Psychology
University of Alabama in Birmingham

Evelyn B. Thoman

Patricia T. Becker

Department of Biobehavioral Sciences
University of Connecticut

Running head: Subject Refusals

PS 010987

Abstract

Do sampling biases introduced in studies requiring a large amount of time make those samples less representative than the samples in studies requiring less subject involvement? This question was explored in the context of mother-infant interaction studies by comparing maternal attitudes of two groups of mothers: 20 mothers who participated with their infants in 35 hours of observation and testing, and 17 mothers who refused to participate in that study, but did spend 30 minutes completing a questionnaire. These two groups of mothers differ widely in their willingness to be involved in a study. All subjects completed the Pregnancy Research Inventory at the end of the eighth month of pregnancy. There were no significant differences between the two groups on any scale. The importance of developing procedures to assess important biases introduced into studies requiring substantial commitments of time is discussed.

Subject Refusals and Sampling Bias

The use of human subjects for psychological study is typically dependent upon the willingness of individuals to participate in any particular study. Investigators seldom know in what ways or to what extent their findings are biased as a result of this necessary non-random selection procedure. In a recent review of the issues involved in the use of volunteer subjects, Rosenthal and Rosnow (1975) emphasized the importance of situational factors such as the type of research conducted, the importance of that research to the subjects, and the populations sampled as determinants of the kind and extent of sample bias introduced with the use of volunteer subjects.

The issue dealt with in most of the studies reviewed by Rosenthal and Rosnow (1975) is the degree and type of sample bias introduced by the voluntary sample selection procedure in studies requiring a modest amount of subject participation.

-----A related issue which has previously not received attention is the degree and type of additional sample bias introduced when the level of commitment required of subjects is very high. That is, do subjects who agree to participate in a study requiring them to commit a great deal of time and effort differ in important ways from subjects who refuse to make such a major commitment, but who are willing to participate in a study requiring a much more modest amount of time and effort?

This question is particularly relevant in the study of mother-infant interactions. Such studies often require repeated observations of mothers and infants (e.g., Brazelton, Tronick, Adamson, Als & Wise, 1975; Richards & Bernal, 1972; Thoman, Becker & Freese, 1978). Because of this, the refusal rate is quite high in such studies. No one has systematically examined potential biases in samples

used in this type of study.

The present report is based on two studies which involved use of the same questionnaires to measure primiparous mothers' attitudes toward pregnancy at the beginning of their ninth month of pregnancy. The Observational Study included mothers who committed themselves and their newborn infants to a total of 35 hours of questionnaires, interviews, and direct observations during the first five postpartum weeks. The Questionnaire Study included mothers who refused to participate in the Observational Study, but who would complete a questionnaire requiring approximately 30 minutes of their time. Since the same prenatal questionnaire was used in both studies, it was possible to compare the attitudes of those who participated in a study requiring an extended, high level of involvement with those who were only willing to participate in a study requiring minimal involvement.

Method

Subjects

The subjects were 37 primiparous mothers with no history of abortion or miscarriage, whose names were obtained through local obstetricians. Each mother was planning to deliver her infant at Windham Community Memorial Hospital in Willimantic, Connecticut. The women were white, from middle-to lower-middle-class families. They ranged in age from 17 to 29, with a mean age of 24.4 years for mothers in the Observational Study and 23.6 years for mothers in the Questionnaire Study.

Measure

The Pregnancy Research Inventory (Schaefer & Manheimer, Note 1) was administered to all 37 subjects, 20 in the Observational Study and 17 in the Question-

naire Study. The Pregnancy Research Inventory is a 125-item, multiple-choice format questionnaire which is divided into eight scales. Seven of these scales had previously met a selection criterion of scale homogeneity of at least .50 and a test-retest reliability of at least .75 and were judged acceptable for use with primiparous mothers (Freese & Thoman, 1978). The seven scales used to assess maternal attitudes in the present study are listed in Table 1.

Procedure

Eighty-three expectant mothers were contacted individually and given an oral description of a longitudinal observation study in which they were asked to participate. Twenty-two mothers agreed to participate, and 20 actually did. As part of the Observational Study, these 20 mothers completed the Pregnancy Research Inventory 17-35 days prior to their expected dates of delivery ($\bar{X}$ = 29.0).

The 61 expectant mothers who refused to participate in the Observational Study were asked to take part in a more limited study. The purpose of this study was to assess the questionnaires being used in the Observational Study. Thirty mothers agreed to do so. Of these, 13 were too close to their expected dates of delivery for their data to be used in the Questionnaire Study, so only the data from 17 mothers were included in the Prenatal Questionnaire Study and in this report. These 17 mothers completed the Pregnancy Research Inventory 26-37 days prior to their expected dates of delivery ($\bar{X}$ = 32.8).

Results

Means and standard deviations for the seven selected scales of the Pregnancy Research Inventory are presented in Table 1 for the 20 women from the Observational

Study and for the 17 women from the Questionnaire Study. Between-group differences in means were assessed using t tests. There were no significant differences between the group means for any scale of the Pregnancy Research Inventory.

Insert Table 1 about here

Discussion

There is considerable evidence in the literature that attitudes measured during pregnancy are related to mothers' complications at the time of labor and delivery (Davids, DeVault & Talmadge, 1961; Davids & DeVault, 1962), health of their infants during the prenatal period (Davids et al., 1961; Ferreira, 1960), later maternal or child-rearing attitudes (Doty, 1967; Zemlick & Watson, 1953), and maternal behaviors several months after delivery (Davids, Holden & Gray, 1963).

----- Studies in which the Pregnancy Research Inventory has been used have shown mothers' attitudes during pregnancy to be related to number of administrations of medication during labor and delivery (Yang, Zweig & Douthitt, 1976), complications of delivery (Erikson, 1965; Heinsteins, 1967), and low Apgar scores for the infants (Erikson, 1965).

There are at least two ways in which prenatal attitudes could be related to patterns of mother-infant interaction. First, as Yang et al. (1976) have suggested, maternal attitudes measured during pregnancy may reflect enduring dispositional styles which may also affect the course of mother-infant interactions. For example, a woman who reports herself to be anxious during pregnancy may be a generally anxious person whose anxiety will affect her interactions with her infant. This possibility has not yet been tested.

A second possibility is that maternal attitudes measured during pregnancy may affect the labor and delivery process and, consequently, the infants' physical condition and ability to interact. For example, Yang et al. reported a positive relationship between expectant mothers' scores on three scales of the Pregnancy Research Inventory (Fears for Self, Irritability & Tension, & Depression and Withdrawal) and the number of administrations of medication they received during labor and delivery. In turn, the number of administrations of medication mothers received was negatively related to their infants' 5-minute Apgar scores. Furthermore, Lewis, Bartels, Campbell and Goldberg (1967) have reported that Apgar scores at birth are related to infants' visual attention at 3 and 9-13 months of age, lower Apgar scores being associated with shorter fixations of a stimulus. Limits in the infants' ability to fixate visually would limit mutual gazing, a pattern of behavior thought to play an important role in early mother-infant interaction (Brazelton, Tronick, Adamson, Als & Wise, 1975). Thus prenatal maternal attitudes could affect mother-infant interactions indirectly, mediated by labor and delivery variables affecting the infant's condition.

Although subjects who refuse to participate in a study can not be observed directly, it is important to use inference to try to assess the nature and degree of possible sampling bias introduced by their refusals. The strategy used in this report is one way of making such inferences, based on an attitudinal measure that is demonstrably related to behaviors of interest in the Observational Study.

The results of this study provide no evidence that women who were willing to participate in a study requiring a high degree of involvement differed in prenatal attitudes about their pregnancies or their infants from women who were willing to participate only in a study requiring a minimal amount of time and

effort. Seventy-three percent of the potential subjects contacted refused to participate in a study requiring a high degree of involvement. Half of the women who refused were willing to participate in a study involving less time. Altogether, 63% of the pregnant mothers contacted consented to participate in one of the studies: 26.6% in the high-involvement Observational Study and 36.1% in the low-involvement Questionnaire Study. Despite the very small proportion of mothers willing to participate in the Observational Study, those mothers did not differ in their maternal attitudes from mothers who were only willing to complete a questionnaire.

Rosenthal and Rosnow (1975) have suggested that some methods of minimizing sample biases are (1) to make individual, interesting appeals for participation, (2) to explicitly state the importance of the research and its relevance to the potential subject, and (3) to communicate that the research tasks are non-stressful and do not involve threatening evaluations of the subjects. In soliciting subjects for the current studies, as much as an hour was spent discussing purposes and procedures with potential subjects. The topic of the research was of immediate and obvious relevance to the new mothers. These factors probably contributed greatly to minimizing differences between the samples employed in the two studies.

The findings of this study are of general interest because they provide evidence that demands for extended involvement in a study and the consequent low rate of volunteering do not necessarily lead to greater sample biases than are found in studies requiring minimal involvement. If important sample biases are found in studies requiring extended involvement by subjects, it seems likely that the biases are due primarily to variables that are specific to the experimental situation rather than to the requirement of extended involvement.

Reference Notes

1. Schaefer, E. S. and Manheimer, H. Dimensions of perinatal adjustment. Paper presented at meetings of the Eastern Psychological Association, New York, New York, 1960.

References

- Brazelton, T. B., Tronick, E., Adamson, L., Als, H. and Wise, S. Early mother-infant reciprocity. In: Parent-infant interaction. New York: Associated Scientific Publishers, 1975.
- Davids, A. and DeVault, S. Maternal anxiety during pregnancy and childhood abnormalities. Psychosomatic Medicine, 1962, 24, 464-470.
- Davids, A., DeVault, S. and Talmadge, M. Psychological study of emotional factors in pregnancy: A preliminary report. Psychosomatic Medicine, 1961, 23, 93-103.
- Davids, A., Holden, R. H. and Gray, G. B. Maternal anxiety during pregnancy and adequacy of mother and child adjustment eight months following childbirth. Child Development, 1963, 34, 993-1002.
- Doty, B. A. Relationships among attitudes in pregnancy and other maternal characteristics. Journal of Genetic Psychology, 1967, 111, 203-217.
- Erikson, M. T. Relationships between psychological attitudes during pregnancy and complications of pregnancy, labor and delivery. Proceedings of the 73rd Annual Convention of the American Psychological Association, 1965, 213-214.
- Ferreira, A. J. The pregnant woman's emotional attitude and its reflection on the newborn. American Journal of Orthopsychiatry, 1960, 30, 553-561.
- Freese, M. P. and Thoman, E. B. The assessment of maternal characteristics for the study of mother-infant interactions. Infant Behavior and Development, 1978, 1, 95-105.
- Heinstein, M. I. Expressed attitudes and feelings of pregnant women and their relations to physical complications of pregnancy. Merrill-Palmer Quarterly, 1967, 13, 217-236.

- Lewis, M., Bartels, B., Campbell, H. and Goldberg, S. Individual differences in attention: The relation between infants' condition at birth and attention distribution within the first year. American Journal of Diseases for Children, 1967, 113, 461-465.
- Richards, M. P. M. and Bernal, J. F. An observational study of mother-infant interaction. In N. Blurton-Jones (Ed.), Ethological studies of child behaviour. London: Cambridge University Press, 1972.
- Rosenthal, R. and Rosnow, R. L. The volunteer subject. New York: John Wiley and Sons, 1975.
- Thoman, E. B., Becker, P. T. and Freese, M. P. Individual patterns of mother-infant interaction. In G. P. Sackett (Ed.), Observing behavior, volume 1: Theory and applications in mental retardation. Baltimore: University Park Press, 1977.
- Yang, R. K., Zweig, A. R., Douthitt, T. C. and Federman, E. J. Successive relationships between attitudes during pregnancy, maternal analgesic medication during labor and delivery, and newborn behavior. Developmental Psychology, 1976, 12, 6-14.
- Zemlick, M. J. and Watson, R. I. Maternal attitudes of acceptance and rejection during and after pregnancy. American Journal of Orthopsychiatry, 1953, 23, 570-584.

Footnotes

This study was carried out at the University of Connecticut as part of a dissertation submitted by the senior author to Purdue University.

At the time this research was conducted, the senior author was supported by NIMH Predoctoral Fellowship 5268-81-13645. The research was also supported by The Grant Foundation and NICHD Grant HD08195-01A2.

¹Reprints are available from Dr. Margaret P. Freese, Department of Psychology, Campbell Hall, University of Alabama in Birmingham, Birmingham, Alabama 35294, U.S.A.

Table 1
Comparison of Mean Scores for Scales
of the Pregnancy Research Inventory

	Observational Study Group (n = 20)		Questionnaire Study Group (n = 17)		<u>t</u>
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	
Health Problems during Pregnancy	121.90	13.88	118.18	17.18	.73
Fears for Self	20.65	2.54	21.29	3.87	.59
Lack of Desire for Pregnancy	10.50	4.05	10.29	4.84	.14
Dependency	27.10	4.13	27.35	5.15	.16
Fears for Baby	22.00	4.19	22.00	4.20	.00
Irritability & Tension	20.65	5.83	20.47	5.16	.10
Depression & Withdrawal	17.65	5.06	17.00	3.79	.46